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(54) Modular extruded countertops

(57) A modular countertop is disclosed. The modular countertop permits individuals to mix countertop components and achieve a desired aesthetic effect. The modular countertop includes at least a first longitudinal extending countertop component and a second longitudinally extending countertop component. The first countertop component includes a first connecting member and the second countertop component includes a second connecting member, wherein the first connecting member and the second meting member selectively and securely couple the first and second countertop components together when the first and second connecting members are properly joined.

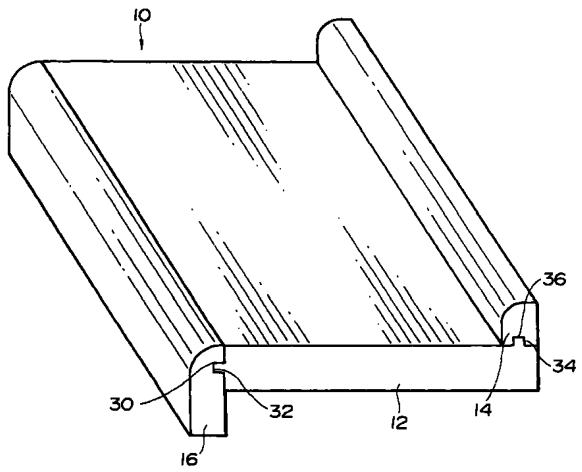

FIG. 1

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Description

[0001] This application is a continuation-in-part of commonly owned U.S. Patent Application Serial No. 09/179,448, filed October 27, 1998, and entitled "Foam Core Countertop Profile Extrusion System".

[0002] The invention relates to countertops and methods for manufacturing the countertops. More particularly, the invention relates to extruded modular countertops and methods for manufacturing the extruded countertops.

[0003] Decorative countertops are found in household kitchens and bathrooms throughout the world and play a major role in the appearance of the kitchen or bathroom. Countertops are commonly made from decorative laminates, solid surface materials, granite and marble.

[0004] It is often desirable, however, to mix materials and decorative patterns when preparing a countertop. This is sometimes accomplished by utilizing different materials on opposite sides of an appliance, or on opposite sides of the kitchen or bathroom. Similarly, individuals may employ differing back splashes and top surfaces or front edges and top surfaces to achieve a desired aesthetic effect.

[0005] Unfortunately, however, individuals wishing to mix countertop components in this manner must choose among a variety of countertop materials which are not specifically designed for use together or they must special order custom made countertops designed to meet their specific needs. Neither of these options are appealing to most individuals desiring to update their kitchen or bathroom with a new countertop. These options are also not appealing to builders wishing to meet the specific needs of consumers, while also maintaining a reasonable overhead in the construction of new homes.

[0006] Specifically, special order countertops are expensive and beyond the budgets of many homeowners. As to using disparate countertop components to achieve a desired result, since the countertop components are often not designed for use together, the individual installing the countertop must often make time consuming changes in the countertop components before they will fit together.

[0007] Neither option is acceptable, and an alternative is required providing consumers with the choices they desire and deserve. The present invention provides such an alternative.

[0008] It is, therefore, an object of the present invention to provide a modular countertop permitting individuals to mix countertop components and achieve a desired aesthetic effect. The modular countertop includes at least a first longitudinal extending countertop component and a second longitudinally extending countertop component. The first countertop component includes a first connecting member and the second countertop component includes a second connecting member, wherein the first connecting member and the second meting member selectively and securely couple the first and second countertop components together when the first and second connecting members are properly joined.

[0009] It is also an object of the present invention to provide a modular countertop wherein the countertop components may be a top surface, a back splash and/or a front edge.

[0010] It is another object of the present invention to provide a modular countertop wherein the countertop components are extruded.

[0011] It is a further object of the present invention to provide a modular countertop wherein the connecting members are respectively integrally formed with the first and second countertop components.

[0012] It is also an object of the present invention to provide a modular countertop wherein the connecting members snap fit to selectively and securely couple the countertop components together.

[0013] It is another object of the present invention to provide a modular countertop wherein the first connecting member is a tongue and second connecting member is a groove, and the tongue fits within the groove to selectively and securely couple the first and second countertop components together.

[0014] It is a further object of the present invention to provide a modular countertop including a pin which securely couples the tongue and groove together.

[0015] It is also an object of the present invention to provide a modular countertop wherein the first connecting member includes an elongated shaft with a bulbous end and the second connecting member includes a cam lock which locks the first connecting member and the first countertop component in position.

[0016] It is another object of the present invention to provide a method for assembling a countertop. The method is achieved by manufacturing at least two countertop components chosen from the group consisting of a top surface, a back splash and a front edge, wherein each of the at least two countertop components include selectively connecting members securely coupling the countertop components together when the connecting members are properly joined. The connecting members are then joined to securely couple the countertop components and the countertop components are installed a predetermined location.

[0017] Other objects and advantages of the present invention will become apparent from the following detailed description when viewed in conjunction with the accompanying drawings, which set forth certain embodiments of the invention.

Figure 1 is a perspective view of a modular countertop manufactured in accordance with the present invention.

Figure 2 is a perspective view of the top surface of the modular countertop.

Figure 3 is a perspective view of the front edge of the modular countertop.

Figure 4 is a perspective view of the back splash of the modular countertop.

Figure 5 is a schematic of the system employed in extruding components of the modular countertop.

Figure 6 is a cross sectional view of the three layer laminate used in the manufacture of the components of the modular countertop.

Figures 7 through 10 are various embodiments employed in connecting adjacent components of the modular countertop.

[0018] The detailed embodiments of the present invention are disclosed herein. It should be understood, however, that the disclosed embodiments are merely exemplary of the invention, which may be embodied in various forms. Therefore, the details disclosed herein are not to be interpreted as limited, but merely as the basis for the claims and as a basis for teaching one skilled in the art how to make and/or use the invention.

[0019] With reference to Figure 1, a modular countertop 10 manufactured in accordance with the present invention is disclosed. The modular countertop 10 is constructed from three distinct components. Specifically, the modular countertop 10 is constructed from a top surface 12, a back splash 14 and a front edge 16. The components are selectively secured together using interlocking connecting members found on each of the components.

[0020] With reference to Figure 2, the top surface 12 of the countertop 10 is disclosed. The top surface 12 includes lateral side facings 18, 20, a front facing 22, a rear facing 24, a bottom facing 26 and a top facing 28. The front facing 22 of the top surface 12 is provided with a connecting member 30 designed to engage a connecting member 32 found on the front edge 16 in a manner that will be discussed in greater detail below.

[0021] The top facing 28 is also provided with an upwardly extending connecting member 34 adjacent the rear facing 24. The upwardly extending connecting member 34 is designed to engage a connecting member 36 found on the back splash 14 in a manner that will be discussed in greater detail below.

[0022] The front edge 16 is disclosed in Figure 3. The front edge 16 is preferably shaped to resemble the front edge of a conventional countertop. As such, the front edge 16 includes lateral side facings 38, 40, a front facing 42, a rear facing 44, and a bottom facing 46. The rear facing 44 adjacent the top facing 48 is provided with a connecting member 32 designed to engage the connecting member 30 found along the front facing 22 of the top surface 12.

[0023] The back splash 14 is disclosed in Figure 4. The back splash 14 is preferably shaped to resemble the back splash of a conventional countertop. As such, the back splash 14 includes lateral side facings 50, 52, a front facing 54, a rear facing 56, and a bottom facing 58. The bottom facing 58 is provided with a connecting member 36 designed to engage the connecting member 34 found along the top facing 28 of the top surface 12.

[0024] While the top surface 12, back splash 14 and front edge 16 may be manufactured using a wide variety of techniques, the components are preferably extruded in a manner similar to that disclosed in commonly known U.S. Patent Application Serial No. 09/179,448, filed 10/27/1998, entitled "FOAM CORE COUNTERTOP PROFILE EXTRUSION SYSTEM", which is incorporated herein by reference. Briefly, and with reference to Figures 5 and 6, the '448 application discloses a system and apparatus 62 for extruding a foam core component 64. Generally, the system 62 includes a plurality of hoppers 66a-c coupled to conventional drying units 68a-c, a plurality of extruders 70a-c respectively coupled to the hoppers 66a-c, a coextrusion die 72, a calibrator assembly 74, a cooling tank 76, a puller 78 and a cutting assembly 80.

[0025] With reference to Figure 6, the extruded component 64 is a three layer extrusion including a supportive foamed polymer substrate layer 82, a thin, solid polymeric surfacing layer 84 and a thin opaque layer 86 between the substrate layer 82 and the polymeric surfacing layer 84. While the preferred component includes three layers, other layering arrangements may be employed without departing from the spirit of present invention. In addition, the materials discussed as the preferred embodiment of the present invention are merely included as exemplary of the materials with which the present invention may be practiced, and the countertop components may be manufactured from a variety of materials without departing from the spirit of the present invention.

[0026] As discussed above, the countertop components 12, 14, 16 are preferably composed of a supportive foamed polymer substrate layer 82, a thin, solid polymeric surfacing layer 84 and a thin opaque layer 86 between the polymeric surfacing layer 84 and the substrate layer 82. The thin opaque layer 86 is employed to ensure that the substrate layer 82 will not be viewable through the solid polymeric surfacing layer 84.

[0027] Specifically, the foamed polymer substrate layer 82 is preferably composed of recycled poly(acrylonitrile-c-butadiene-c-styrene) (ABS) and may take on a variety of colors. As such, the opaque layer 86 is provided between the polymeric surfacing layer 84 and the substrate layer 82 to ensure that colors contained in the substrate layer 82 will not be seen through the polymeric surfacing layer 84.

[0028] In accordance with the preferred embodiment of the present invention, the substrate layer 82 maintains a thickness of approximately 0.691 inches (1.755 cm) along the countertop components, the opaque layer 86 maintains a thickness of approximately 0.010 inches (0.0254 cm) along the countertop components and the polymeric surfacing layer 84 maintains a

thickness of approximately 0.050 inches (0.127 cm) along the countertop components.

[0029] As discussed above, the substrate layer is preferably a recycled poly(acrylonitrile-c-butadiene-c-styrene) (ABS) including various fillers, for example, calcium carbonate, WOLLASTINITE (a calcium silicate), glass fibers, etc. In addition, the substrate layer may be the same as that disclosed in commonly owned U.S. Patent Application Serial No. 08/978,026, entitled "POLYMERIC FOAM SUBSTRATE AND ITS USE IN COMBINATION WITH DECORATIVE SURFACES", filed November 25, 1997, which is incorporated herein by reference.

[0030] The solid polymeric surfacing layer 84 is the decorative outer layer of the countertop components. The polymeric surfacing layer 84 is preferably an acrylic and includes various fillers designed to achieve the desired aesthetic effect. Similarly, the opaque layer 86 is preferably acrylic and provides an opaque layer 86 between the substrate layer 82 and the polymeric surfacing layer 84.

[0031] With reference to Figures 7 to 10, adjacent components may be coupled in a wide variety of manners without departing from the spirit of the present invention. The coupling technique employed should ultimately permit the secure and ready attachment of the components, while minimizing the production of undesirable and unsightly seams.

[0032] For example, and with reference to Figure 7, the adjacent components 88, 90 may be readily combined using a conventional tongue 92 and groove 94 connection. In order to ensure connection of the components without unsightly adhesive showing through, the groove 94 is provided with first and second recesses 96 permitting excess adhesive to seep therein and not to an exposed portion of the countertop 10.

[0033] An alternate connection embodiment is disclosed in Figure 8. This embodiment employs a conventional tongue 98 and groove 100 design to connect the adjacent components 102, 104, but adds a pin 106 to retain the tongue 98 securely within the groove 100. The pin 106 is inserted through a hole 108 formed in the groove 100 and also passes through an aligned hole 110 formed in the tongue 98. In this way, the pin 106 securely couples the adjacent components 102, 104. Although the pin 106 securely couples adjacent components 102, 104, adhesive may be used within the coupling to ensure a secure connection.

[0034] With reference to Fig. 9, a snap fit connection 112 may also be employed to connect first and second countertop components 114, 116. In accordance with this embodiment, the first component 114 includes a male member 118 with camming surfaces 120 shaped for receipt within the female member 122 of the second component 116. While one design of the male and female members is disclosed, those skilled in the art will readily appreciate other designs that may be employed without departing from the spirit of the present invention.

[0035] A further embodiment is disclosed in Figure 10. The embodiment employs a cam lock and pin system 124 to attach adjacent components 128, 130. Specifically, the first component 128 includes a first connecting member 132 with an elongated shaft 134 and a bulbous end 136. The first connecting member 132 is passed through an axially aligned passageway 138 in the second component 130. A cam lock 140 is then rotated within a cam recess 142 found in the second component 130 to lock the first connecting member 132, and the first countertop component 128, in position.

[0036] While the preferred embodiments have been shown and described, it will be understood that there is no intent to limit the invention by such disclosure, but rather, is intended to cover all modifications and alternate constructions falling within the spirit and scope of the invention as defined in the appended claims.

Claims

1. A modular countertop permitting individuals to mix countertop components and achieve a desired aesthetic effect, comprising:

   a first longitudinally extending countertop component and a second longitudinally extending countertop component, the first countertop component having a first connecting member and the second countertop component having a second connecting member, wherein the first connecting member and the second connecting member selectively and securely couple the first and second countertop components together when the first and second connecting members are properly joined.

2. The modular countertop according to claim 1, wherein the first countertop component is a top surface and the second countertop component is a back splash or a front edge.

3. The modular countertop according to claim 2, in which the second countertop component is a back splash, the countertop further comprising a third countertop component which is a front edge.

4. The modular countertop according to any of the preceding claims, wherein the first and second countertop components are extruded.

5. The modular countertop according to any of the preceding claims, wherein the first and second connecting members are respectively integrally formed with the first and second countertop components.

6. The modular countertop according to any of the

preceding claims, wherein the first and second connecting members snap fit to selectively and securely couple the first and second countertop components together.

7. The modular countertop according to any of the preceding claims, wherein the first connecting member is a tongue and second connecting member is a groove, the tongue fitting within the groove to selectively and securely couple the first and second countertop components together.

8. The modular countertop according to any of the preceding claims, further including a pin, which securely couples the first connecting member and the second connecting member.

9. The modular countertop according to any of the preceding claims, wherein the first connecting member includes an elongated shaft with a bulbous end and the second connecting member includes a cam lock which engages the elongated shaft and locks the first connecting member and the first countertop component in position.

10. A method for preparing a countertop, the countertop comprising a first countertop component and a second countertop component, the method comprising the following steps:

preparing the first countertop component with a first connecting member for selectively and securely joining the first countertop component to the second countertop component;
preparing the second countertop component with a second connecting member for selectively and securely joining the second countertop component to the first countertop component; and
connecting the first and second connecting members so as to engage each other and couple the first countertop component to the second countertop component.

11. The method according to claim 10, wherein the first countertop component and the second countertop component are each different and selected from a top surface, a back splash and a front edge.

12. The method according to either of claims 10 or 11, wherein the first connecting member and the second connecting member snap fit to selectively and securely couple the countertop components together.

13. The method according to any of claims 10 to 12, wherein the first connecting member is a tongue and the second connecting member is a groove, the tongue fitting within the groove to selectively and securely couple the countertop components together.

14. The method according to any of claims 10 to 13, wherein a pin is used to securely couple the first connecting member and the second connecting member.

15. The method according to any of claims 10 to 14, wherein the first connecting member is provided with an elongated shaft with a bulbous end and the second connecting member comprises a cam lock, the elongated shaft being engaged with the cam lock to secure the first connecting member and the first countertop component in position.

16. The method according to any of claims 10 to 15, wherein the first and second countertop components are prepared by extrusion.

17. The method according to any of claims 10 to 16, further comprising the steps of preparing a third countertop component with a third connecting member for selectively and securely joining the third countertop component to the first countertop component or the second countertop component, and joining the third countertop component to the first or the second countertop component.

18. The method according to claim 17, wherein the first countertop component is a top surface, the second countertop component is a back splash and the third countertop component is a front edge, the first countertop component including a pair of connecting members for respectively coupling with the connecting member of the second countertop component and the connecting member of the third countertop component.

19. The method according to claim 18, wherein the connecting members of the first countertop component are integrally formed with the first countertop component, the connecting member of the second countertop component is integrally formed with the second countertop component and the connecting member of the third countertop component is integrally formed with the third countertop component.

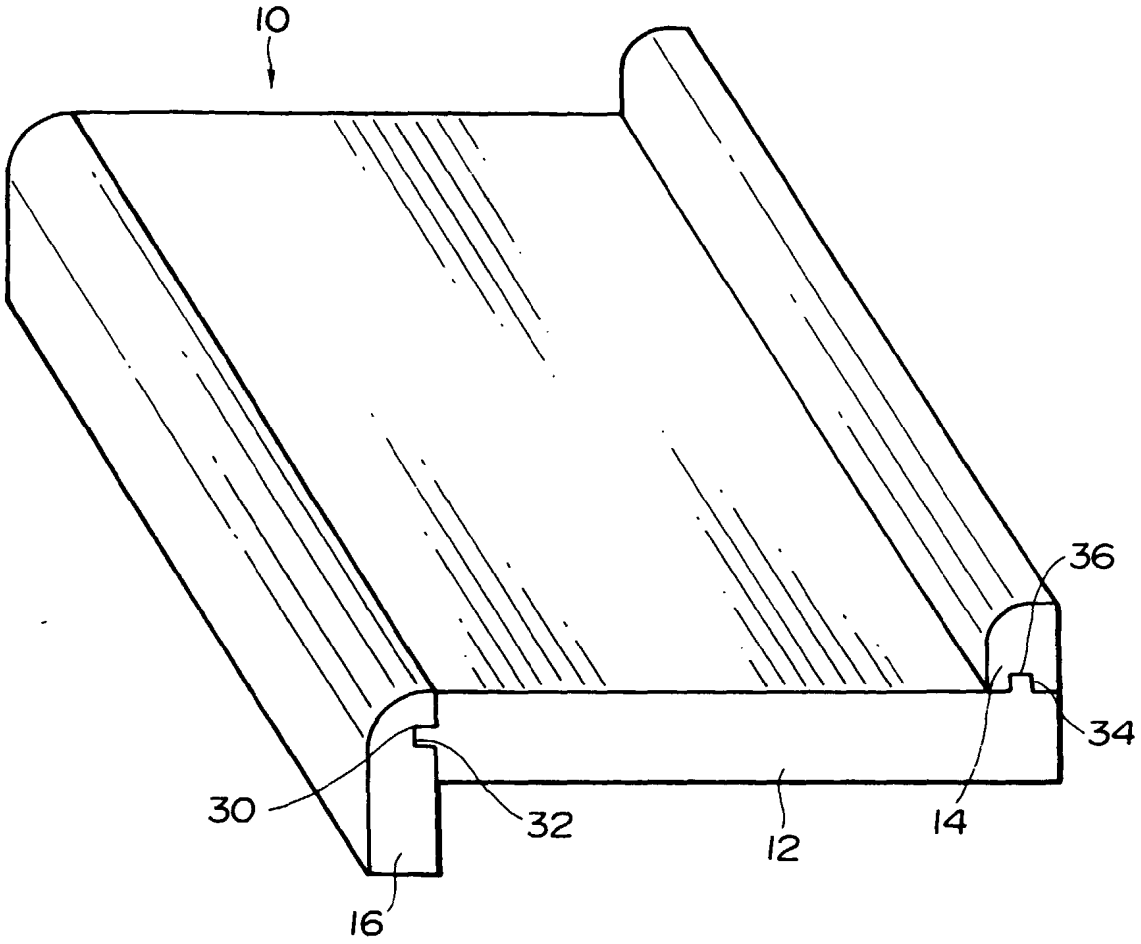


FIG. 1

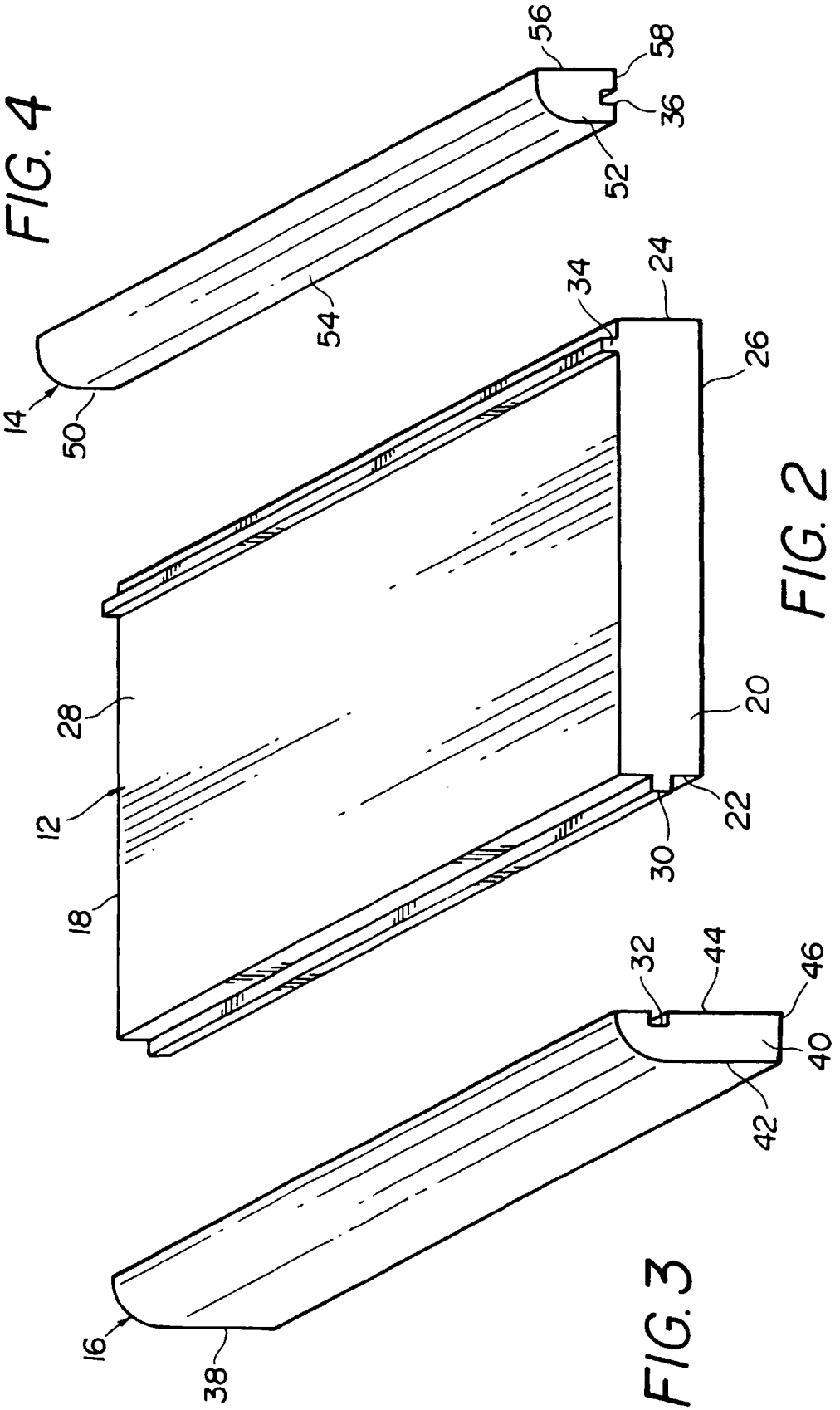


FIG. 4

FIG. 2

FIG. 3

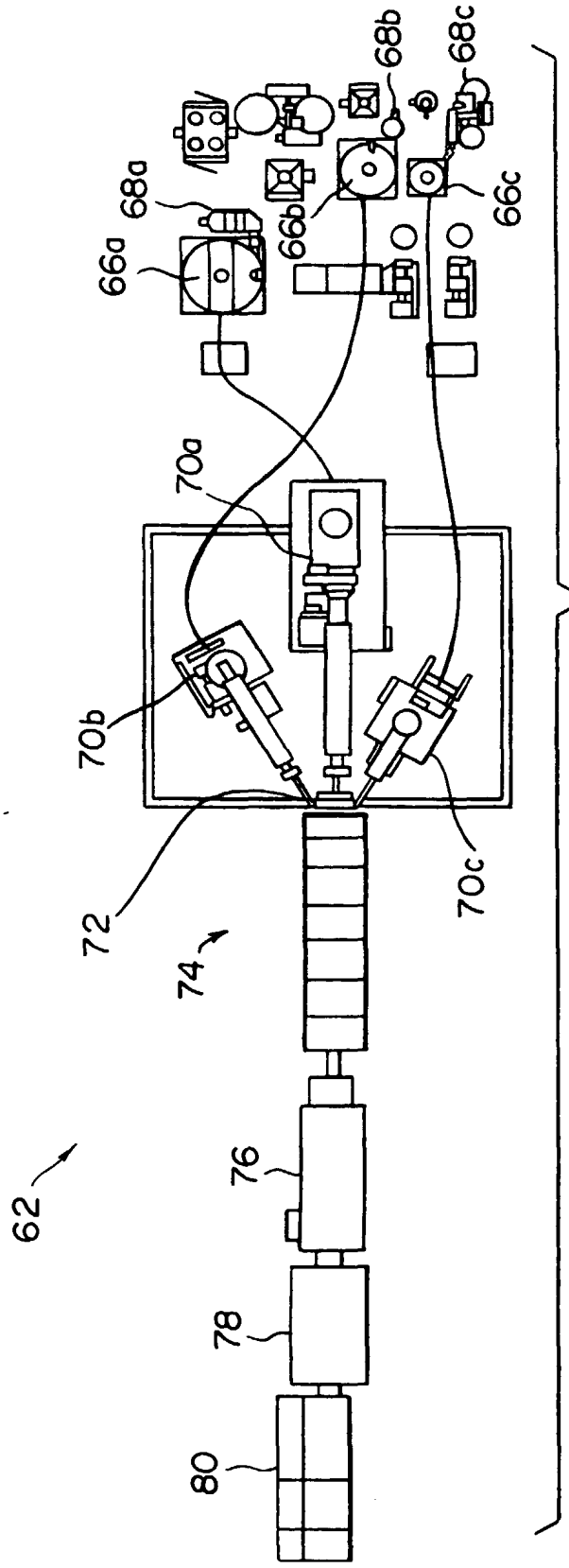


FIG. 5

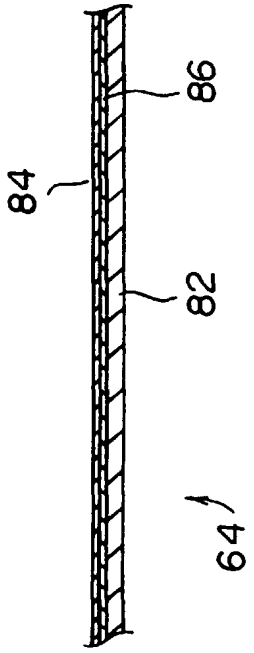


FIG. 6

FIG. 8

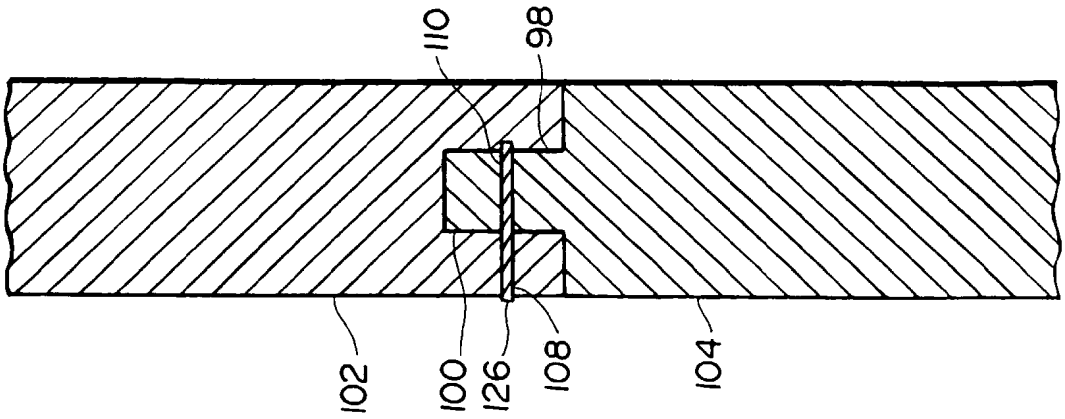


FIG. 7

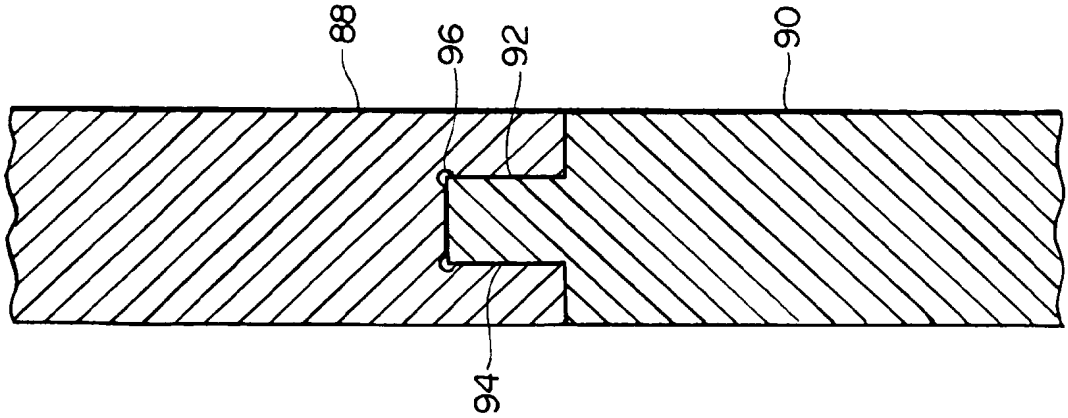


FIG. 10

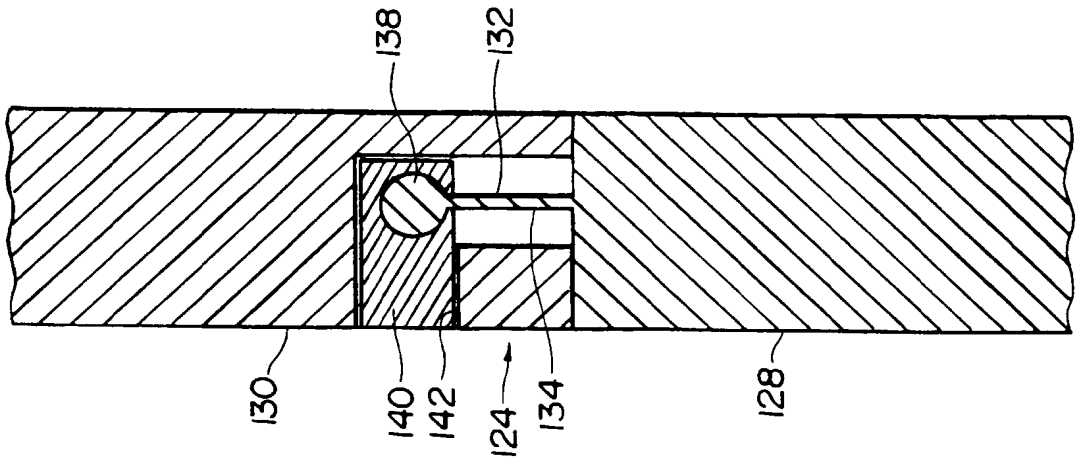
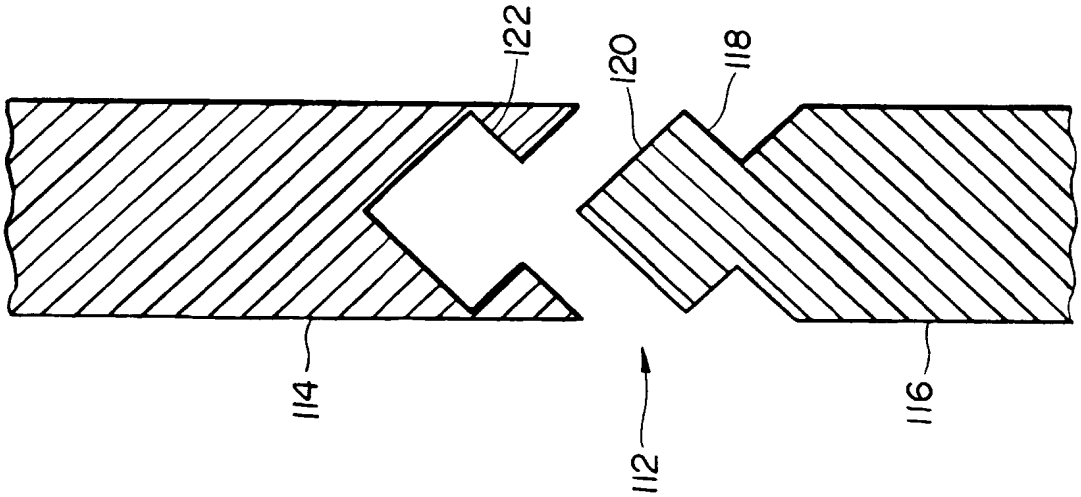


FIG. 9



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EUROPEAN SEARCH REPORT

Application Number
EP 99 12 0846

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X Y	US 5 733 022 A (WHETSTONE WILLIAM F) 31 March 1998 (1998-03-31) * abstract; figures 1-4 * * column 3, paragraph 1 - column 5, line 15 * ---	1-5,7, 10,11, 13,16-19 6,8,9, 12,14,15	A47B77/02
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Y	GB 1 310 778 A (KUNSTOFF GMBH) 21 March 1973 (1973-03-21) * the whole document * ---	9,15	
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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	3 December 1999	Jones, C

CATEGORY OF CITED DOCUMENTS

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